

DV 20VB

INSTRUCTION MANUAL AND SAFETY INSTRUCTIONS

WARNING

Improper and unsafe use of this power tool can result in death or serious bodily injury!

This manual contains important information about product safety. Please read and understand this manual before operating the power tool. Please keep this manual available for others before they use the power tool.

MODE D'EMPLOI ET INSTRUCTIONS DE SECURITE

AVERTISSEMENT

Une utilisation incorrecte et dangereuse de cet outil motorisé peut entraîner la mort ou de sérieuses blessures corporelles!

Ce mode d'emploi contient d'importantes informations à propos de la sécurité de ce produit. Prière de lire et de comprendre ce mode d'emploi avant d'utiliser l'outil motorisé. Garder ce mode d'emploi à la disponibilité des autres utilisateurs avant qu'ils utilisent l'outil motorisé.

MANUAL DE INSTRUCCIONES E INSTRUCCIONES DE SEGURIDAD

ADVERTENCIA

¡La utilización inapropiada e insegura de esta herramienta eléctrica puede resultar en lesiones serias o en la muerte!

Este manual contiene información importante sobre la seguridad del producto. Lea y comprenda este manual antes de utilizar la herramienta eléctrica. Guarde este manual para que puedan leerlo otras personas antes de que utilicen la herramienta eléctrica.



DOUBLE INSULATION
DOUBLE ISOLATION
AISLAMIENTO DOBLE

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IMPORTANT INFORMATION

Read and understand all of the operating instructions, safety precautions and warnings in the Instruction Manual before operating or maintaining this power tool.

Most accidents that result from power tool operation and maintenance are caused by the failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing a potentially hazardous situation before it occurs, and by observing appropriate safety procedures.

Basic safety precautions are outlined in the "SAFETY" section of this Instruction Manual and in the sections which contain the operation and maintenance instructions.

Hazards that must be avoided to prevent bodily injury or machine damage are identified by **WARNINGS** on the power tool and in this Instruction Manual.

Never use this power tool in a manner that has not been specifically recommended by HITACHI, unless you first confirm that the planned use will be safe for you and others.

MEANINGS OF SIGNAL WORDS

WARNING indicates a potentially hazardous situations which, if ignored, could result in serious personal injury.

CAUTION indicates a hazardous situations which, if ignored, could result in moderate personal injury, or could cause machine damage.

NOTE emphasizes essential information.

SAFETY

GENERAL SAFETY RULES

⚠ WARNING: Read and understand all instructions.

Failure to follow all instructions listed below, may result in electric shock, fire and/or serious personal injury.

SAVE THESE INSTRUCTIONS

1. Work Area

- (1) **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
- (2) **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
- (3) **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control.

2. Electrical Safety

- (1) **Double Insulated tools are equipped with a polarized plug (one blade is wider than the other.) This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double Insulation  eliminates the need for the three wire grounded power cord and grounded power supply system.
- (2) **Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.** There is an increased risk of electric shock if your body is grounded.
- (3) **Don't expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
- (4) **Do not abuse the cord.** Never use the cord to carry the tools or pull the plug from a receptacle. Keep cord away from heat, oil, sharp edges or moving parts. Replace damaged cords immediately. Damaged cords increase the risk of electric shock.
- (5) **When operating a power tool outside, use an outdoor extension cord marked "W-A" or "W".** These cords are rated for outdoor use and reduce the risk of electric shock.

3. Personal Safety

- (1) **Stay alert, watch what you are doing and use common sense when operating a power tool.** Do not use tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury.
- (2) **Dress properly. Do not wear loose clothing or jewelry. Contain long hair.** Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.
- (3) **Avoid accidental starting.** Be sure switch is off before plugging in. Carrying tools with your finger on the switch or plugging in tools that have the switch on invites accidents.

- (4) Remove adjusting keys or switches before turning the tool on.** A wrench or a key that is left attached to a rotating part of the tool may result in personal injury.
- (5) Do not overreach.** Keep proper footing and balance at all times. Proper footing and balance enables better control of the tool in unexpected situations.
- (6) Use safety equipment.** Always wear protective glasses. Dust mask, nonskid safety shoes, hard hat, or ear plugs must be used for appropriate conditions.

3. Tool Use and Care

- (1) Use clamps or other practical way to secure and support the workpiece to a stable platform.** Holding the work by hand or against your body is unstable and may lead to lose of control.
- (2) Do not force tool.** Use the correct tool for your application. The correct tool will do the job better and safer at the rate for which it is designed.
- (3) Do not use tool if switch does not turn it on or off.** Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- (4) Disconnect the plug form the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
- (5) Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hand of untrained users.
- (6) Maintain tools with care.** Keep cutting tools sharp and clean. Properly maintained tools, with sharp cutting edges are less likely to bind and are easier to control.
- (7) Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools operation.** If damaged, have the tool serviced before using. Many accidents are caused by poorly maintained tools.
- (8) Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool, may become hazardous when used on another tool.

5. Service

- (1) Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel could result in a risk of injury.
- (2) When servicing a tool, use only identical replacement parts.** Follow instructions in the Maintenance section of this manual. Use of unauthorized parts of failure to follow Maintenance Instruction may create a risk of electric shock or injury.

6. Never touch moving parts.

Never place your hands, fingers or other body parts near the tool's moving parts.

7. Never operate without all guards in place.

Never operate this tool without all guards or safety features in place and in proper working order. If maintenance or servicing requires the removal of a guard or safety feature, be sure to replace the guard or safety feature before resuming operation of the tool.

8. Use right tool.

Don't force small tool or attachment to do the job of a heavy-duty tool.

Don't use tool for purpose not intended—for example—don't use circular saw for cutting tree limbs or logs.

9. Never use a power tool for applications other than those specified.

Never use a power tool for applications other than those specified in the Instruction Manual.

10. Handle tool correctly.

Operate the tool according to the instructions provided herein. Do not drop or throw the tool. Never allow the tool to be operated by children, individuals unfamiliar with its operation or unauthorized personnel.

11. Keep all screws, bolts and covers tightly in place.

Keep all screws, bolts, and plates tightly mounted. Check their condition periodically.

12. Do not use power tools if the plastic housing or handle is cracked.

Cracks in the tool's housing or handle can lead to electric shock. Such tools should not be used until repaired.

13. Blades and accessories must be securely mounted to the tool.

Prevent potential injuries to yourself or others. Blades, cutting implements and accessories which have been mounted to the tool should be secure and tight.

14. Keep motor air vent clean.

The tool's motor air vent must be kept clean so that air can freely flow at all times. Check for dust build-up frequently.

15. Operate power tools at the rated voltage.

Operate the power tool at voltages specified on its nameplate.

If using the power tool at a higher voltage than the rated voltage, it will result in abnormally fast motor revolution and may damage the unit and the motor may burn out.

16. Never use a tool which is defective or operating abnormally.

If the tool appears to be operating unusually, making strange noises, or otherwise appears defective, stop using it immediately and arrange for repairs by a Hitachi authorized service center.

17. Never leave tool running unattended. Turn power off.

Don't leave tool until it comes to a complete stop.

18. Carefully handle power tools.

Should a power tool be dropped or struck against hard materials inadvertently, it may be deformed, cracked, or damaged.

19. Do not wipe plastic parts with solvent.

Solvents such as gasoline, thinner benzine, carbon tetrachloride, and alcohol may damage and crack plastic parts. Do not wipe them with such solvents.

Wipe plastic parts with a soft cloth lightly dampened with soapy water and dry thoroughly.

SPECIFIC SAFETY RULES AND SYMBOLS

1. Hold tools by insulated gripping surfaces when performing an operation where the cutting tool may contact hidden wiring or its own cord. Contact with a "live" wire will make exposed metal parts of the tool "live" and shock the operator.
2. Wear ear plugs when using the tool for extended periods. Prolonged exposure to high intensity noise can cause hearing loss.
3. **NEVER** touch the tool bit with bare hands after operation.
4. **NEVER** wear gloves made of stuff liable to roll up such as cotton, wool, cloth or string, etc.
5. **ALWAYS** attach the side handle and securely grip the Hammer Drill.
6. **ALWAYS** be careful with buried object such as an underground wiring. Touching these active wiring or electric cable with this tool, you may receive an electric shock.
Confirm if there are any buried object such as electric cable within the wall, floor or ceiling where you are going to operate here after.
7. Definitions for symbols used on this tool

V volts

Hz hertz

A amperes

no no load speed

W watt

 Class II Construction

---/min revolutions per minute

DOUBLE INSULATION FOR SAFER OPERATION

To ensure safer operation of this power tool, HITACHI has adopted a double insulation design. "Double insulation" means that two physically separated insulation systems have been used to insulate the electrically conductive materials connected to the power supply from the outer frame handled by the operator. Therefore, either the symbol "□" or the words and "Double insulation" appear on the power tool or on the nameplate.

Although this system has no external grounding, you must still follow the normal electrical safety precautions given in this Instruction Manual, including not using the power tool in wet environments.

To keep the double insulation system effective, follow these precautions:

- Only HITACHI AUTHORIZED SERVICE CENTER should disassemble or assemble this power tool, and only genuine HITACHI replacement parts should be installed.
- Clean the exterior of the power tool only with a soft cloth moistened with soapy water, and dry thoroughly.

Never use solvents, gasoline or thinners on plastic components; otherwise the plastic may dissolve.

**SAVE THESE INSTRUCTIONS
AND
MAKE THEM AVAILABLE TO
OTHER USERS OF THIS TOOL!**

FUNCTIONAL DESCRIPTION

NOTE:

The information contained in this Instruction Manual is designed to assist you in the safe operation and maintenance of the power tool.

Some illustrations in this Instruction Manual may show details or attachments that differ from those on your own power tool

NAME OF PARTS

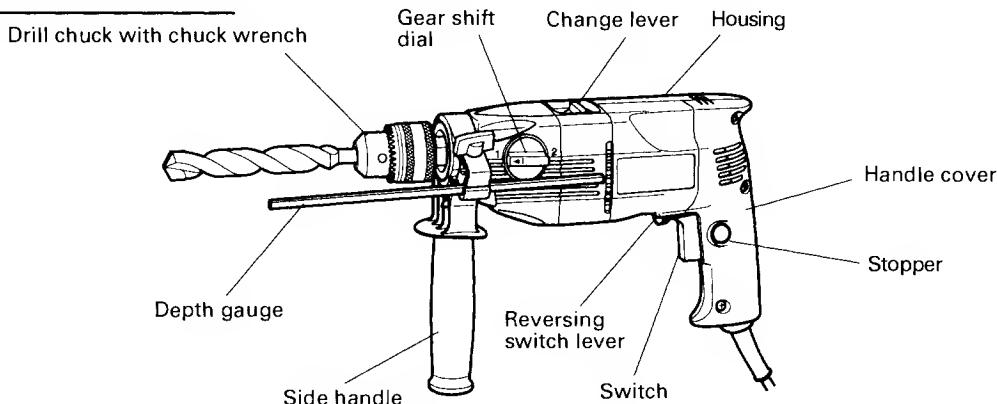


Fig. 1 Model DV20VB

SPECIFICATIONS

Model	DV20VB		DV20VC		DV20T2	
Motor	Single Phase, Series Commutator Motor					
Power source	Single Phase 115V AC 60 Hz					
Current	6.8 A					
Reversible	Yes		No		No	
Speed change	1	2	1	2	1	2
No-load speed	0-1100 /min	0-2600 /min	0-1100 /min	0-2600 /min	1100 /min	2600 /min
Drill chuck capacity	1/2" (13mm)					
Capacity	Steel	1/2" (13mm)	5/16" (8mm)	1/2" (13mm)	5/16" (8mm)	1/2" (13mm)
	Concrete	3/4" (20mm)	1/2" (13mm)	3/4" (20mm)	1/2" (13mm)	3/4" (20mm)
	Wood	1-9/16" (40mm)	1" (25mm)	1-9/16" (40mm)	1" (25mm)	1" (25mm)
No-load impact rate	14000 /min	36000 /min	14000 /min	36000 /min	14000 /min	36000 /min
Weight (Without Cord)	Spec. for chuck with chuck wrench: 4.6 lbs (2.1 kg) Spec. for keyless chuck: 5.1 lbs (2.3 kg)					

ASSEMBLY AND OPERATION

APPLICATIONS

- By combined actions of ROTATION and IMPACT:
Boring holes in hard surfaces (concrete, marble, granite, tiles, etc.)
- By ROTATIONAL action:
Boring holes in metal, wood and plastic.

PRIOR TO OPERATION

1. Power source

Ensure that the power source to be utilized conforms to the power source requirements specified on the product nameplate.

2. Power switch

Ensure that the switch is in the OFF position. If the plug is connected to a receptacle while the switch is in the ON position, the power tool will start operating immediately and can cause serious injury.

3. Extension cord

When the work area is far away from the power source, use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.

⚠ WARNING: Damaged cord must be replaced or repaired.

4. Check the receptacle

If the receptacle only loosely accepts the plug, the receptacle must be repaired. Contact a licensed electrician to make appropriate repairs.

If such a faulty receptacle is used, it may cause overheating, resulting in a serious hazard.

5. Confirming condition of the environment:

Confirm that the work site is placed under appropriate conditions conforming to prescribed precautions.

6. Selecting the appropriate drill bit:

- When boring concrete or stone

Use the drill bits specified in the Optional Accessories.

- When boring metal or plastic

Use an ordinary metalworking drill bit.

- When boring wood

Use an ordinary woodworking drill bit.

However, when drilling 1/4" (6.5 mm) or smaller holes, use a metalworking drill bit.

7. Mounting and dismounting of the bit.

For Drill chuck with chuck wrench (Fig. 2)

Fit the drill bit into the chuck and use the chuck wrench to secure it, tightening the chuck by each of the three holes in turn.

For keyless chuck (Fig. 3, 4)

(1) Mounting the bit

Turn the lock collar in the direction "AUF" and open the chuck. After inserting the drill bit into the chuck as far it will go, turn the lock collar in the "ZU" direction. Grip the retaining ring and close the chuck by turning the sleeve clockwise as viewed from the front.

(2) Dismounting the bit

Turn the lock collar in the direction "AUF" to release the shucking force. Grip the retaining ring and open the chuck by turning the sleeve counterclockwise.

NOTE

When the sleeve does not become loose any further, fix the side handle to retaining ring, hold side handle firmly, then turn the sleeve to loosen by hand.

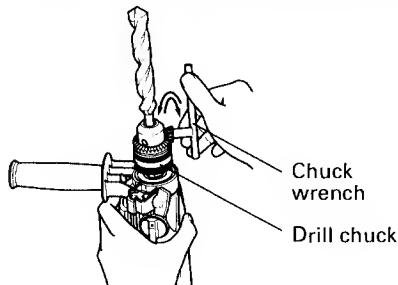


Fig. 2

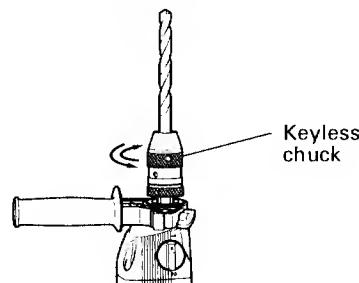


Fig. 3

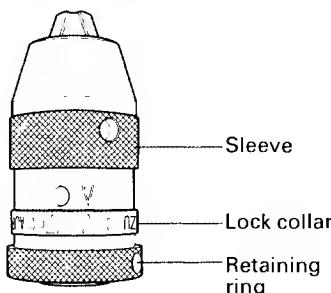


Fig. 4

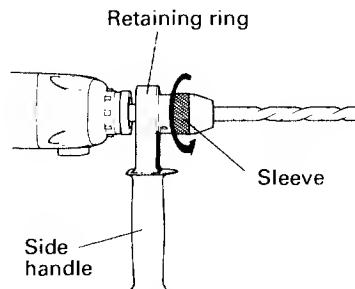


Fig. 5

8. Fixing the side handle (Fig. 6)

Loosen the knob bolt on the side handle, and attach the side handle to the gear cover in a position convenient for drilling. Match the projecting part of the handle to the groove on the gear cover, and firmly tighten the knob bolt. To remove the side handle, loosen the knob bolt and rotate the handle.

To attach a depth gauge on the side handle, insert the gauge into the U-shaped

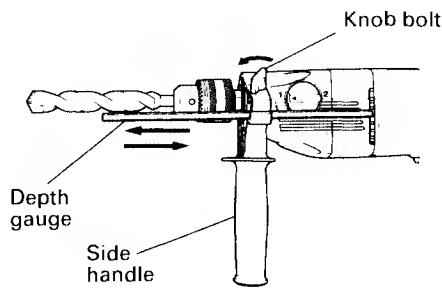


Fig. 6

groove on the side handle, adjust the position of the depth gauge in accordance with the desired depth of the hole, and firmly tighten the wing bolt.

9. IMPACT to ROTATION changeover (Fig. 7)

The Hammer Drill can be switched from IMPACT (impact plus rotation) to ROTATION (rotation only) by rotating the change lever (Fig. 1). When boring concrete, stone, tile or similar hard materials, rotating the change lever to IMPACT side. The drill head impacts against the material while continuing to rotate.

When boring metal, wood or plastic, rotating the change lever to ROTATION side. The drill rotates as an ordinary electric drill.

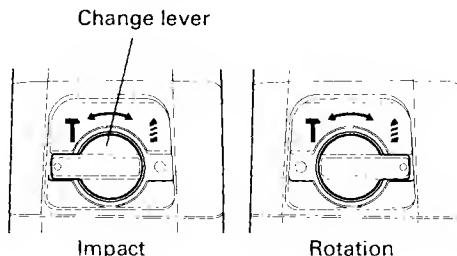


Fig. 7

CAUTION

Do not use the Hammer Drill in the IMPACT function if the material can be bored by rotation only. Such action will not only reduce drill efficiency, but may also damage the drill tip.

NOTE

The change lever may not rotate smoothly when changing from hammer drill mode to drill mode (Fig. 7).

In this case, switch ON and operate the machine for few seconds. The spindle shaft will then be pushed forward, and the change lever can be moved smoothly.

10. High-speed/Low-speed changeover

To change speed, rotate the gear shift dial as indicated by the arrow in Fig. 8.

The numeral "1" engraved on the drill body denotes low speed, the numeral "2" denotes high speed.

11. Confirm the direction of bit rotation (Model DV20VB)

The bit rotates clockwise (viewed from the rear side) by pushing the R-side of the reversing switch lever.

The L-side of the lever is pushed to turn the bit counterclockwise. (Fig. 9)

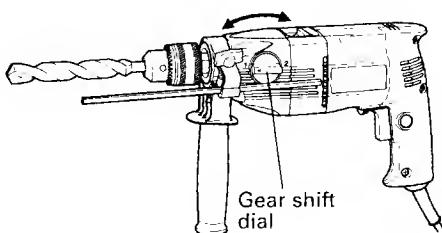


Fig. 8

⚠ CAUTION

Never change the direction of bit rotation while operating. Turn the power switch OFF before changing the direction of bit rotation: otherwise, burning of the motor will result.

Always use the hammer drill with clockwise rotation, when using it as an hammer drill. (Fig. 10)

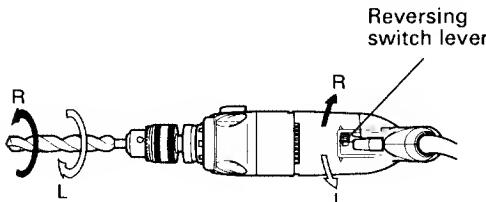


Fig. 9

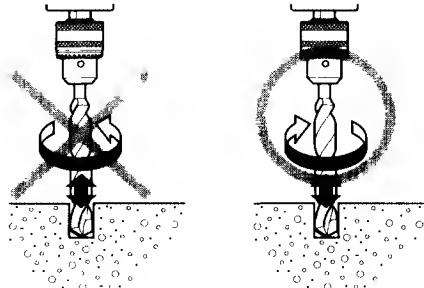


Fig. 10

HOW TO USE

⚠ CAUTION:

To prevent accidents, make sure to turn the switch off and disconnect the plug from the receptacle when the drill bits and other various parts are installed or removed. The power switch should also be turned off during a work break and after work.

1. Operation of switch

- The drill speed can be adjusted from 0 through full speed by regulating the trigger-squeezing force. The more the trigger is squeezed, the faster the drill rotates. When the trigger is squeezed fully, the speed is the maximum. (Model DV20VB, DV20VC)
- Pulling the trigger and pushing the stopper, it keeps the switched-on condition which is convenient for continuous running. When switching off, the stopper can be disconnected by pulling the trigger again.

2. When using as a Drill or a Hammer Drill

(1) Pressing force of the drill

You cannot drill holes more quickly even if you press the drill with a stronger force than necessary. It not only damages tip of drill bits and decreases the efficiency of operation, but also shortens the life of the drill.

(2) In case of penetrating holes

Drill bits can be broken when the material being drilled is penetrated. It is important to decrease pressing force just before penetrating.

⚠ CAUTION

In continuous operation, conduct no-load operation for five seconds after completing a drilling job.

(3) When a thick drill bit is used

Your arm is subjected to larger reaction force when a thicker drill bit is used. Be careful not to be moved by the reaction force. For this, establish a foothold, hold the unit tightly with both hands perpendicularly to the material being drilled.

MAINTENANCE AND INSPECTION

⚠ WARNING: Be sure to switch power OFF and disconnect the plug from the receptacle during maintenance and inspection.

1. Inspecting the drill bits

Since use of a dull tool will cause motor malfunctioning and degraded efficiency, replace the drill bit with a new one or resharpening without delay when abrasion is noted.

2. Inspecting the mounting screws

Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loosened, retighten them immediately.

⚠ WARNING: Using this hammer drill with loosen screws is extremely dangerous.

3. Keeping after use

When not in use, the Power tool should be kept in a dry place out of the reach of children.

4. Inspecting the carbon brushes

For your continued safety and electrical shock protection, carbon brush inspection and replacement on this tool should ONLY be performed by a HITACHI AUTHORIZED SERVICE CENTER.

5. Maintenance of the motor

The motor unit winding is the very "heart" of the power tool. Exercise due care to ensure the winding does not become damaged and/or wet with oil or water.

6. Service and repairs

All quality power tools will eventually require servicing or replacement of parts because of wear from normal use. To assure that only authorized replacement parts will be used, all service and repairs must be performed by a HITACHI AUTHORIZED SERVICE CENTER, ONLY.

ACCESSORIES

⚠ WARNING: Accessories for this power tool are mentioned in this Instruction Manual.

The use of any other attachment or accessory can be dangerous and could cause injury or mechanical damage.

NOTE:

Accessories are subject to change without any obligation on the part of the HITACHI.

STANDARD ACCESSORIES

(1) Plastic Carrying Case (Code No. 310905)	1
(2) Side Handle (Code No. 316279)	1
(3) Depth Gauge (Code No. 303709)	1
(4) Chuck Wrench (spec. only for chuck with chuck wrench) (Code No. 987576)	1

OPTIONAL ACCESSORIES sold separately

(1) Drill bit for concrete and stone

Bit Dia.	Overall Length	Code No.	Bit Dia.	Overall Length	Code No.	Bit Dia.	Overall Length	Code No.
1/8" (3.2mm)	2-9/16" (65mm)	939875	5/16" (8mm)	4" (100mm)	931852	9/16" (14.3mm)	6-5/16" (160mm)	931776
3/16" (4.8mm)	3-3/8" (85mm)	939879	3/8" (10mm)	4-3/4" (120mm)	931854	5/8" (16mm)	6-5/16" (160mm)	931670
7/32" (5.5mm)	4" (100mm)	939882	15/32" (12mm)	4-3/4" (120mm)	971704	3/4" (20mm)	6-5/8" (170mm)	959615
1/4" (6.4mm)	4" (100mm)	939884	1/2" (13mm)	6-5/16" (160mm)	931855			

(2) Drill Stand (Model D10-DS)

NOTE:

Specifications are subject to change without any obligation on the part of the HITACHI.